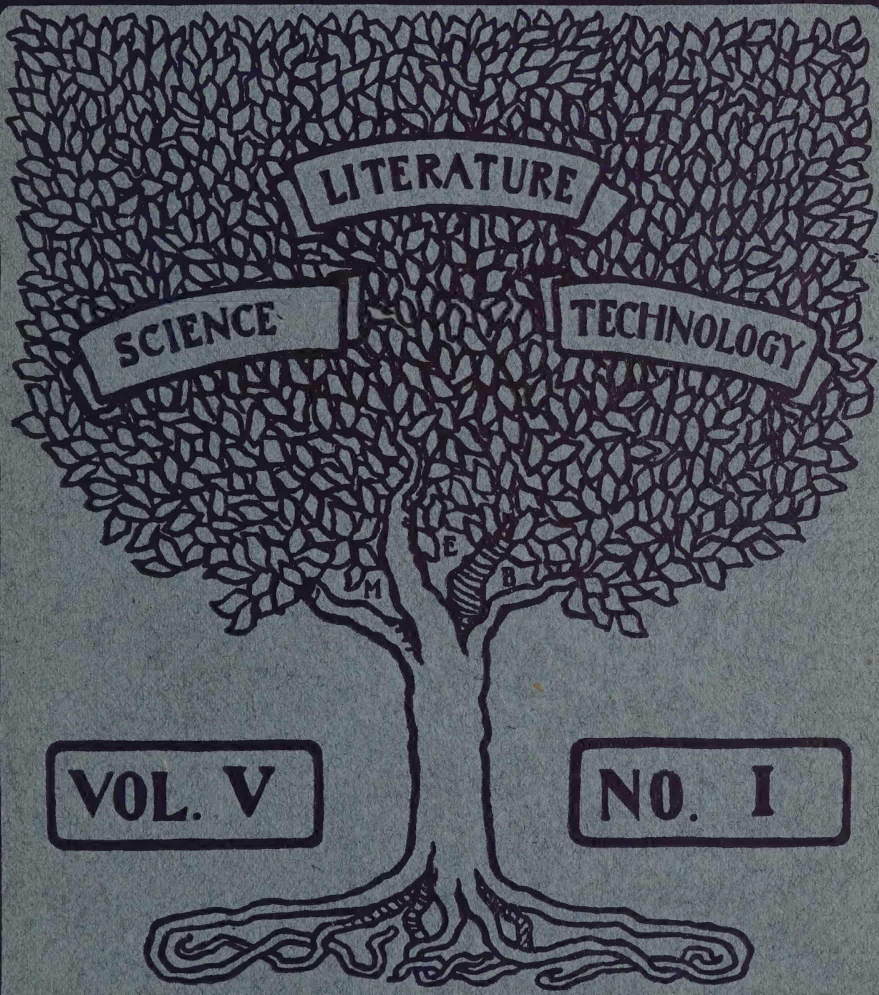
LEWIS INSTITUTE BULLETIN



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Lewis Institute Bulletin

Volume V October, 1906 Number 1

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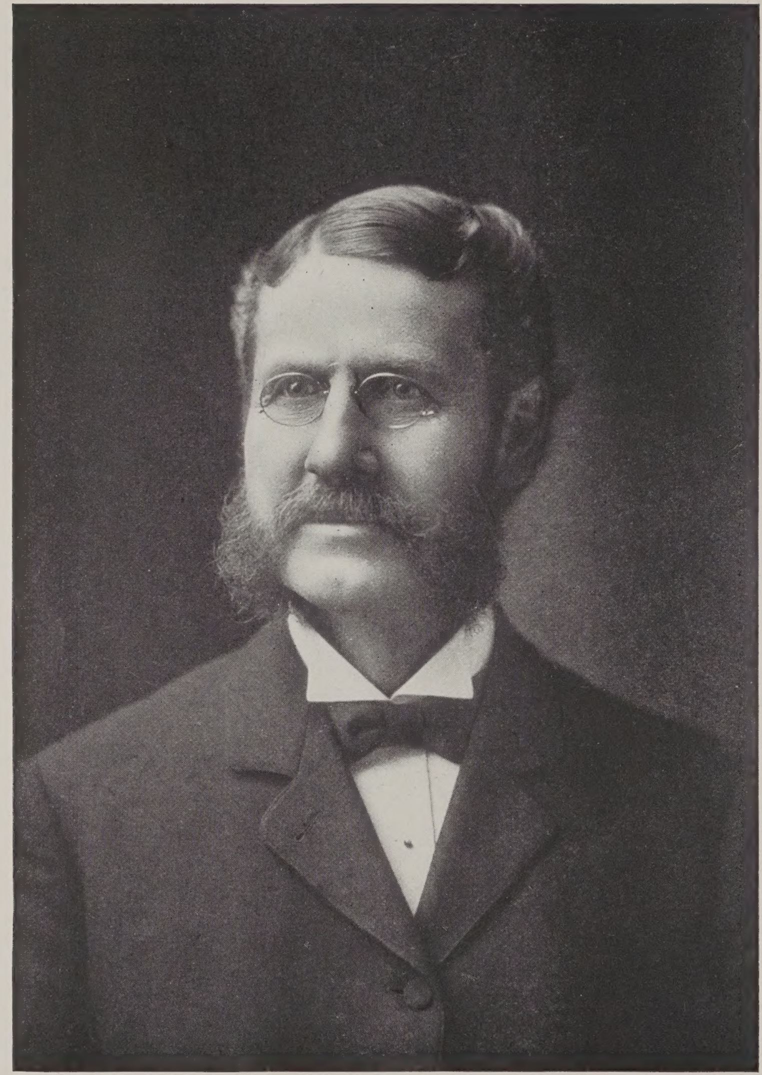

ALBERT GRANNIS LANE.
1841-1906.

Lewis Institute Bulletin

Volume 5 OCTOBER, 1906 Number 1

THE DIRECTOR'S ANNUAL STATEMENT

With our Commencement to-night we complete ten years of educational work. We are having no celebration other than our regular closing exercises. I think this is well, for I am disposed to question the value and the fitness of the elaborate celebration of such an occasion. Those of us who assumed the responsibility of carrying out the will of Allen C. Lewis by organizing the Lewis Institute and making it what it has been for these ten years (I include trustees, managers, faculty, and students), may do better than to ask to have our achievements lauded and proclaimed.

A great opportunity was presented to us. We have done our best, and our friends and the general public have been duly appreciative. May we not be content with this? May we not have something of the serenity felt by Franklin, when, as he looked back over his life as a whole, he asked himself whether, if the opportunity were given him to try it all over again, it would be worth while? You remember his conclusion. "That felicity, when I reflected on it, has induced me sometimes to say that were it offered to my choice, I should have no objection to a repetition of the same life from its beginning, only asking the advantages authors have in a second edition to correct some faults of the first." Doubtless there are faults that might be avoided if we had it all to do over again, for, in a work of this kind, the good is the greatest enemy of the best. We feel, however, that we have done well; and yet, as those of you who have just received your certificates of graduation doubtless know, we all might have done better.

But enough of this. This is our Commencement. You are commencing the next stage of your journey, which, for most of you, is further study and training by way of preparation for lives of usefulness and service. The Institute is commencing its second decade. We of the Board of Managers are painfully conscious of the fact that we are now administering the affairs of the Institute without the assistance of two men who had much to do in making the first decade of our history, and whose memory we do well to honor. The first President of the Board of Trustees of the Lewis Institute and the first President of the University of Chicago have finished their labors, and to them both the Institute owes a debt of gratitude.

I cannot do better in this connection than to quote from President Harper's Decennial Statement. "In these modern times ten years count for as much as one hundred years did formerly. It is worth the while of those engaged in any important undertaking, educational or otherwise, to sum up the results of the work accomplished in ten years, to consider the policies that have prevailed, and to decide whether, in view of all the facts, these policies have been correct, and have secured the results desired. Moreover, it is to be remembered that many policies, at least those of minor importance, may wisely be changed from time to time under the same administration; for a policy which may have been the best for a certain period may not be the best for another period. It has been customary in educational administration to wait for the change of an administration before introducing or adopting new policies. The institution is thus too frequently compelled to wait a longer period than is wise. It may, of course, be difficult for an administration to adapt itself from time to time to changes, but, however difficult this may be, it would seem to be upon the whole a wise policy."

May we not take these words, so characteristic of Dr. Harper, as his message to us on this occasion? I shall not now and here attempt such a summing up of the past and such a forecast of the future of the Institute as his words suggest. I shall only sketch briefly our development for ten years past.

The Lewis Institute is a polytechnic institution for both sexes. Instruction is given in general and technical studies covering the usual college and high-school periods. The courses of instruction are grouped into three main divisions: (1) Engineering and the mechanic arts, (2) General science, including domestic economy, and (3) The liberal arts. We recognize the fact that the basis of engineering study must be broad and solid, and candidates for the engineering degree are encouraged to secure as complete a general education as time and means will allow. Many high-school graduates, not candidates for the degree of Mechanical Engineer, have continued their studies in the Institute by taking advantage of the courses of instruction offered in science and the liberal arts. To these students the title of Associate in Arts is granted on the completion of two years of college work. To those students who complete the four years of high-school work the Academic Certificate is given.

The enrollment the first year of the Institute was 694, of which number 34 were college students and 275 high-school students; 125 were special students in day classes and 260 were in night classes. Of the college students 12 were young women, and 22 young men, of whom only 4 were studying engineering proper.

The enrollment of the fifth year, 1901, was 2,035, of which number 144 were college students, 630 high-school students, and 232 special and summer students. Of the college students 67 were young women and 77 were young men, of whom 46 were in engineering. Of the high-school students 510 were boys and 120 were girls. There were 1,029 night students.

The enrollment for the past year

has been 2,450, of which number 278 are college students, 762 high-school students, and 248 special and summer students. Of the college students 123 are young women and 155 are young men, of whom 111 are in engineering. Of the high-school students 553 are boys and 209 are girls. There were 1,162 night students.

Of 3,431 students enrolled in the day classes of the Institute during the first decade 1,098 came from the high schools of Chicago and vicinity; 1,276 from grammar schools in Chicago and vicinity, 376 from other Chicago schools, and 690 from schools outside of Chicago.

Our college department has grown in the last five years from 144 to 278. In the same time our high-school department has increased from 630 to 763. There has been a steady increase in the number of students who have entered the Institute after completing a high-school course. The number who have come directly from the grammar school has been remarkably uniform from year to year. If the Institute had been a part of the public-school system of the city, there could have been no greater uniformity in this particular.

I was talking a few days ago with a gentleman who knew intimately Allen C. Lewis. He told me that the founder of the Institute was greatly interested in the boys who leave school at an early age and go to work. He used to ask just what the boys were doing. He became more and more impressed with the necessity of giving them such a training as would make them skilled and intelligent workmen. Mr. Lewis used to ask: What do boys like to do? What can be done to keep them in school until they are properly trained? He made frequent trips to Europe, and the more he saw of what wss done abroad the more impressed he became with the importance of inducing our American boys to make more adequate preparation for their vocations. I maintain that the policy of the Institute from the first has been consistent with this purpose of our founder. I believe that the thousands who have attended the Institute during this first decade of its existence have been made up to a large extent of those who, had it not been for the Institute, would not have been in any school. This is doubtless more largely true of our night than of our day students. All students, both day and night, are consulted with, and their circumstances and desires and aptitudes are taken into account. They are dealt with as individuals who are to meet the responsibilities of life. I believe that our best work has been in this direction, and though changes of policy may be made from time to time, yet, if we are true to the trust and the wishes of Allen C. Lewis, we shall try to find out what the boys and girls want to do, and we shall so counsel and guide and train them that they will be as well prepared as possible for lives of usefulness and service.

I have the following appointments and promotions to announce:

To succeed President Harper on

the Board of Managers, Harry Pratt Judson, LL. D., Acting President of the University of Chicago.

Instructor in Biology and Physiology, Miss Minna C. Denton, B. S., A. M., University of Michigan. Miss Denton has been for five years past instructor in biology in Milwaukee-Downer College. She was also for a time assistant in the biological laboratory at the University of Michigan.

Instructor in Domestic Economy, Miss Mabel T. Wellman, A. B., Wellesley College. Miss Wellman taught from 1895 to 1900 in the Brookline schools and studied at the Massachusetts Institute of Technology. Since 1902 she has been Instructor in Chemistry and House Economics at Rockford College.

Instructor in Modern Languages, Frederick E. Beckmann, A.B., Ph.D., University of Chicago. Mr. Beckman was Instructor in Romance Languages in the University of Minnesota from 1899 to 1904. Last year he was instructor in the Allgemeine Deutsche Schule of Antwerp, Belgium.

Miss Helen D. Street is promoted from instructor to assistant professor of Latin and Greek.

Mr. John Derk Nies is promoted from instructor to assistant professor of Physics and Electrical Engineering.

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Scholarships for excellence in Public Speaking are granted as follows: $60, one year's tuition, to Emma Melendy; $40, two quarters' tuition, to Etta Shafer; $20, one quarter's tuition, to Raymond Williams, Frank Novak, and Frederick Suter.

George Noble Carman,
Director.

ON THE CHOICE OF STUDIES IN ENGINEERING

Some statistics upon the growth of engineering education during a recent ten-year period are given elsewhere in this issue. During the fifty years that engineering education has grown from the efforts of one pioneer institution to the mighty thing that it is to-day, there has been some question in the minds of many able persons as to its value and the likelihood of its permanence. That such has been the case is of small concern now. Employers are demanding men with an engineering education, and they and educators are meeting together and reasoning, and have come to a sort of basis of agreement. This agreement seems to call for the following:

- General Requirements.
  - A fair general education.
  - A sound training in such fundamentals as mathematics, physics, chemistry, mechanics, elementary shopwork, and drawing.
- Special Requirements.
  - Special training along some particular line or lines, such as electricity, machine design, steam or shop engineering, chemistry, etc.

(Taste for business, taste for manufacturing, natural aptitude for organization, etc. Every student has some such characteristics, and employers ask for such things.)

The term "general education" as above used requires explanation. It is employed to include subjects like modern languages, history, physiography, as distinct from mathematics and physics, the latter being those "fundamentals" upon which the "special" work of engineering is found.

Relation between General, Fundamental, and Special Subjects.

		General.	Fundamental.	Special.	Total for year.
High School	1st yr.	12	12	0	24
	2d "	12	12	0	24
	3d "	15	15	0	30
	4th "	15	15	0	30
	Totals.	44 50%	44 50%	0	88 100%
Engineering College.	1st yr.	9	24	0	33
	2d "	0	27	4	31
	3d "	0	21	13	34
	4th "	0	2	26	28
	Totals.	9 7%	74 59%	43 34%	126 100%

This tabulation of the Relation between General, Fundamental, and Special Subjects has been prepared from the "Requirements for the Degree of Mechanical Engineer," as given in the Lewis Institute Register for 1906. The figures given are the numbers of credits. The unit of credit is sixty hours. To illustrate: During the third year of the engineering course, twenty-one credits of work are required in fundamental subjects and thirteen credits in special subjects.

We call the reader's attention to the relation between the three main divisions of the work at each period and to the changes that take place in the general, fundamental, and special columns. The entire absence of special work during the high-school period, and its increase from 0 to 34 during the college period, are significant. Perhaps the most striking fact of the table is the large proportion of time allotted to fundamentals through seven out of the eight years. A table similar to that given, but made from the requirements of any other American engineering school, would be found to correspond in general characteristics with it.

Engineering curricula are arranged on the assumption that students will finish the course, but it is true for all schools that, for one reason or another, a large percentage of students leave before graduation. A well-arranged course is one such that, when a student has carried the full work up to a certain point, his education is the best possible, considering the amount of time he has given it. Such a course has balance. To secure this important quality, technical colleges discourage all violent departures from a carefully considered curriculum.

If a student expects to remain in school for a short time, say one or two years, and has chosen a definite employment to follow afterward, it may be to his advantage to plan his work solely with a view to that employment. Sometimes, however, this may prove rather costly. Suppose that a student has carried such a program for some time, and then decides to continue longer in school, and perhaps to be graduated. Often it is impossible to arrange his work to fit in with the regular curriculum without much sacrifice of time. It is true that most engineering schools permit some election of subjects. This, however, does not imply a narrow specialization. In the case of the student who wishes to leave before graduation the question must be asked, "Have we the right to permit him to narrow his studies at the expense of balance?" No amount of specialization in the engineering school can make the student fit his new environment in the world and fulfill its requirements on the instant. Experience has shown that it is broad training which gives the ease of adjustment to new conditions and a power to attack new problems. Too early specialization often prevents the very result it aims at.

Specialization belongs primarily to the mature student. If he be mature in education, though he be young in years, he should be capable of choosing his field of specialization wisely and concentrating upon it the forces of a rounded and a well-balanced mental training. In the engineering course at Lewis Institute, a little over one-third of the time of the four years is assigned to special subjects (see table). Practically all of the special work is given in the last two years and sixty per cent of it in the fourth year. This work is in mechanical, shop, and electro-technical subjects. It is called special because it develops these lines beyond the fundamental stage. An engineering education cannot be economically got on the interchangeable-parts plan, as a machine is assembled, by gathering pieces made at different times and places, and slipping them together into a complete whole. It must develop one new part at a time upon the old, as does the plant. Unlike the plant, however, it never arrives at perfection.

THE MEETING OF EDUCATION WITH PRACTICE.

Fifty years ago there was only one engineering school in the United States. Rensselaer Institute was founded in 1824; it improved and lengthened its course and became an engineering school in the modern sense in 1850. That was less than sixty years ago. To-day, although the men who take a general college education exceed in number those who study engineering, the latter are increasing in number much the more rapidly, and if the present comparative rate of growth continues, will presently pass the former. In the ten years from 1893 to 1903 the Massachusetts Institute of Technology had a larger increase in students than the academic department of Harvard University. During the same period the increase in the Lawrence Scientific School was within 84 of the increase in the academic department of Harvard. At Cornell the engineering has greater numbers than the academic department, while at Wisconsin the growth of the engineering department in 1903 was greater than the academic, although the total number was less. The average increase in number of engineering students for the period 1893-1903 in the Massachusetts Institute of Technology, Cornell, Wisconsin, and Purdue, four typical engineering colleges somewhat widely separated geographically, was 87 per cent. The population of the United States increased only 22 per cent during the period 1890-1900. The four principal engineering societies, civil, mechanical, mining, and electrical, had an average increase in numbers of 77 per cent in the same period.

As is well known, this growth in the demands for engineering education has been contemporaneous with the stupendous industrial development which has been primarily due to the agency of applied science.

It is interesting to inquire what engineering educators are doing on the one hand to solve the formidable pedagogical problems confronting them, and on the other to keep themselves in touch with the rapid developments in the field of applied science.

The Society for the Promotion of Engineering Education owes its origin to the Engineering Education division of the Congress of Education held in Chicago in 1893. The name of the society tells its object. From the report of 1894 the institutions represented in its membership are 96 universities and colleges, nine manual training schools, and one correspondence school. In its membership there are 330 teachers, many of whom are practicing engineers. An examination of the papers appearing in this report shows that the interests of the society cover a broad field—academic studies, engineering, history and biography, trade, manufacturing, the writing of textbooks, higher scientific investigation, the details of class-room instruction and curriculum making.

The work that the engineering societies have accomplished for engineering education is inestimable. A large percentage of engineering educators are members of one or more of these societies. They show their interest by attending the meetings, and their ability by presenting papers. From the January Year Book of the American Society of Mechanical Engineers it appears that the total membership at the beginning of 1906 was 2,780, of whom some 200, or about 1 in 14, are, if we mistake not, instructors in engineering schools. Of the 117 papers presented before this society, and appearing in Vols. 24, 25, and 26, twenty-eight or nearly one-fourth were from men employed in engineering education.

The societies mentioned are typical channels of contact between Education and practice. In conclusion, a school's alumni are always of great service along these lines, and that service may be much greater. An occasional word of criticism or approval, a suggestion of addition or change in courses, the sending of new methods, or drawings, or models to be added to the school's equipment, the reporting of personal success — these may be little things when considered separately, but they inspire interest and confidence, and interest and confidence go far toward successful teaching.

ELECTRO-TECHNICS AT "778" WEST MADISON

There is, we fear, a faint tinge of sensational journalism in the heading of this article. Why should the street number of Lewis Institute be mentioned here? Merely because it happens to be symbolic of the *concrete* nature of the evening work in electrical engineering at Lewis Institute. The number "778" is a concrete suggestion of the mechanical equivalent of heat, since energy equivalent to 778 foot-pounds raises the temperature of one pound of water one degree Fahrenheit. This fundamental engineering principle flashes into the mind of every evening student the moment he sees the entrance of the building. The evening work in electrical engineering is concrete.

Of all the students who approach that entrance we may here mention three types. The first of these is the man who can never accomplish the full three years' work in electrotechnics, because he has not, and never will have, the capacity. He takes such work as he can, and he finds it profitable. A second type is the young fellow who learns pure mathematics easily, but never seems able to apply his knowledge when he comes to machinery. The third type is the mature man who really has intellectual force, but is afraid he can do nothing with engineering, because his head is not full of equations. It is with this third class that this article is chiefly concerned.

This uneducated but naturally able man has not been accustomed to pure mathematics or scientific terminology. The instructors know this, and they make allowances; they simplify terms; they use rough-and-ready phrases; they accept the students' ways—sometimes clumsy, sometimes picturesque, always forcible—of putting things. Show this kind of student various things that happen when a coil of wire is wrapped round a piece of soft iron, and as likely as not he will reinvent the expressions "choking coil" and "kicking coil"; from such vigorous metaphors he may be led, by graphical methods, to mathematical statements. He may learn to use principles of geometry and the calculus without suspecting that he is using anything but common sense. In brief, an engineering principle can be grasped in some rough but real way long before its full mathematical significance is guessed at, or its formulæ deliberately applied. Many a student can plot curves if he thinks he is working merely with cross-section paper; call the paper "rectangular-co-ordinate," and insist on his understanding ordinate and abscissa, and he will be paralyzed.

The first year of the evening work in electricity may be roughly described as grounding the student in the laws of the conservation of energy as applied to engineering. The method is concrete, and for two or three months the answers to all the problems are to be had either in foot-pounds or in dollars and cents.

The second year acquaints the student with electrical instruments of the various commercial types. He gets at the laws through the machines.

He learns to look at them, not as a mere operative would, but as an engineer would. He learns to detect virtues and defects in lines, dynamos, and various sorts of electro-receptive device. He makes shop tests of mechanical and electrical efficiencies. He learns to operate a given machine, first as a motor, then as a generator. Then he masters the twofold operation of the rotary converter. By the end of this year he has learned to dissect and criticize machines, much as a medical student learns healthy and morbid anatomy in a clinic.

The third year of this evening work is more mathematical than the preceding two years, and consists of demonstrations of the fundamental laws of alternating currents. Here the laboratory method is still prominent; each organ of the machine, if we may so speak, is bodily taken up and its functions displayed. The problems involved in the extension of Ohm's law, etc., are worked out with the students in the lecture-room and the laboratory. Many of the students in this course are bachelors of science.

We are not contending that the mastery of the entire subject of electro-technics is easy. But we are contending that a man may have engineering ability and mathematical power without much taste for pure mathematics. At this time of year almost every mail brings reports of men who have profited vastly by a year or two of evening study in electricity, without having previously pursued either algebra, geometry, trigonometry, or the calculus.

Three cases come to mind as we write. Mr. W—— was a clerk in a commission house at ten dollars a week. He had no education beyond the grammar school, and was twenty years old. He came to Lewis in the evenings for a year and a half, and is now earning thirty dollars a week by applying his electrical information. He is in charge of a gang of faithful men who could not well be promoted, since their knowledge was merely that of mechanical operations. Mr. P——, a clerk in a hardware store—no high-school training—spent his evenings for two years at "778." He is now in charge of a leading branch of the sales department in one of the most prominent of contracting firms. Mr. C—— was older than W—— or P——, say thirty years. He was in charge of a drafting-room, but was losing all interest in the routine. He came to the Institute for the evenings of three years. Meantime at his own office he noted, in a drawing, a fundamental error in the application of a certain electrical principle. That discovery saved his company several thousand dollars, and they advanced him to an important position. Meet him now and you seem to see a different man; life is once more alive for him.

These examples perhaps savor a little of the proprietary-medicine kind of advertising. But we are happy to say that what is happening in these matters of self-improvement in the evening classes at Lewis is happening in many other similar institutions. It may even be that the instructors in pure mathematics in our high schools and colleges have something to learn from the concrete work of evening schools. Possibly it is abnormal that a youth should be glib in his mathematics and powerless in the machine shop. Of this matter we shall have something to say in our next issue.

ALBERT GRANNIS LANE.

Since the Institute opened in 1896, four members of the Board of Managers have passed away. These are President Roche, Dr. Lyman, President Harper, and now Superintendent Lane. Mr. Lane died of nervous prostration August 22, 1906.

His noble career as a man and an educator is well known throughout the country. He was born in Chicago March 15, 1841, and became principal of the Franklin School before his eighteenth birthday. In 1869 he was elected county superintendent, and served for four years. After a period of three years in business he was again elected (1877) county superintendent, and was re-elected in 1882, 1886, and 1890. From 1891 to 1898 he served as superintendent of schools of Chicago. From 1898 till his death he acted as a district superintendent, steadily working beyond his strength in the interest of the great city which he loved. The present superintendent, Mr. Cooley, has often remarked, "He was a man whose assistance was everything to me. He knew Chicago and its needs better than any other man."

In 1893-94 Mr. Lane was president of the National Educational Association. For many years past he was chairman of the board of trustees of that organization, and a member of the executive committee of three which has entire charge of the financial affairs of that organization. In 1887 he had charge of the Association's educational exhibit.

In 1893 he was made chairman of the committee on public education of the World's Congress of Education.

At Mr. Lane's funeral, Bishop Samuel Fallows spoke concerning this matter as follows:

"As General Chairman of the World's Educational Congresses during the Columbian Exposition, the duty devolved upon me to appoint a chairman of the Public School Department of these great gatherings.

"One man stood out above all others as being pre-eminently qualified for this important position — Albert G. Lane. At once entering upon his duties, he organized and carried forward to a memorable issue the many meetings connected with common-school instruction in the United States and popular education in the various countries of the world.

"His versatility, his urbanity, his thorough knowledge of human nature, his complete mastery of the facts and principles of our American educational system, his wonderful organizing power, his unfailing tact, and his unflagging energy were conspicuously manifested.

"He justified in every particular the confidence reposed in him, and won the highest encomiums from the distinguished educators with whom he came in contact.

"My esteem for him, great as it had been before I was thus brought into the closer relationship, was immeasurably heightened, and an affection for him was created which has deepened with succeeding years. I feel a personal loss in his removal from us.

"As a teacher, a superintendent, a husband, a father, a friend, a man, a Christian, he lived a life worthy of emulation, and left a memory precious and inspiring to all who knew him."

The *Record-Herald* of August 23d reports certain words of Mr. Daniel R. Cameron which every young man in Chicago ought to read and ponder. Mr. Cameron was president of the Board of Education for two terms, during which Mr. Lane served as superintendent, and was one of those most instrumental in inducing him to accept the place.

"By virtue of his position as county superintendent of schools in 1873," said Mr. Cameron, "Mr. Lane had charge of funds belonging to the county. This money, amounting to about $32,000, was on deposit in the old Franklin Bank when that institution failed. James Ward was on Mr. Lane's bond and the county would have lost nothing, but Mr. Lane refused to see either the county or his bondsmen lose, and proceeded to sell practically everything he had, and to scrape together enough to make good to the county every cent that was due. He sold his two houses, even the one in which he lived, to accomplish this."

The Educational Review says:

"No one of her merchant princes or railway magnates ever began to do for Chicago the great service that Mr. Lane has done through a life filled with patient, devoted, and unselfish service for the city's children and the city's citizenship. Determined but never aggressive, sincere without being dogmatic, and persuasive with no trace of demagogery, Mr. Lane was a tower of strength. He was almost universally liked and universally trusted. The small group of destructive workers in Chicago who for a few years past have criticized and attacked both Mr. Lane, his high ideals, and his trusted associates, only increased the general esteem in which Mr. Lane was held both in Chicago and throughout the country.

"For the National Educational Association, the loss of Mr. Lane is the most severe with which it could meet. Since his retirement from the presidency in 1894 he has been a member of the Board of Trustees, and the executive officer of that board during the intervening years. To Mr. Lane far more than to any other man, or body of men, is due the present most satisfactory state of the Association's permanent fund. The wise handling of the unfortunate investments made in earlier years, and the admirable choice of new securities, were both his personal doing. The Association paid his loyal service with its unfailing confidence and affection.

"Not many months ago a well-known citizen of Chicago died, leaving a vast fortune behind him. It was chiefly in money and money-values.

Mr. Lane leaves to his city a far richer legacy — a pure and good life lived for his fellows, and an upright character tested and tried in every furnace that tempers the human heart."

COMMENCEMENT.

The ninth commencement exercises of Lewis Institute occurred on the evening of June 20, 1906. The order of the exercises follows:

I. The Procession.
Processional.
The Lewis Institute Orchestra.
II. The Prayer.
The Reverend Edwin Augustus Adams, D. D.
III. Chorus, "Send Out Thy Light" ..... *Gounod*
The Lewis Institute Chorus.
IV. THE FINALS IN PUBLIC SPEAKING.
Some City Problems — A Symposium.
Introductory ...... Arthur Bernard Krock
Libraries .... Cherrill Isabella Wells
Recreation .... Frederick Falls
Privilege .... Nelle Gill
V. Two Songs. (a) "Lullaby" .... *Barch*
(b) "In May" ...... *Parker*
The Girls' Glee Club.
VI. THE FINALS IN PUBLIC SPEAKING (Continued)
A Remedy for Corruption ....
James Aloysius Rafferty
The Remedy Discussed Robert Rollins Mix
Sanitation .... Grace Lucile Hennecke
An Engineering Problem .... Charles Kob
VII. Two Songs. (a) "O Mother Mine"
Neidlinger ....
(b) "Martial Hymn" *Gomes*
The Men's Glee Club.
VIII. The Conferring of Degrees, Titles, and Certificates.

CANDIDATES FOR THE ACADEMIC CERTIFICATE.

Grace Kate Balis
Margaret Bates
Jessie Elizabeth Bishop
John Blatchford
Joseph Brosseau
James Louis Cooke
Arthur John Ramage Curtis
Frank Earle Davenport
Warren Ellis Day
Helen Cossitt DeWitt
Alfred Osmond Dicker
Charles Dugan
Mildred Falls
Emma Agnes Geerdes
Lee Roy Fuller Goss
Ulrich Groenlund
Lawrence Reynolds Hatch
Ralph Reynaud Hawxhurst
Leonard Hill
Albert Beebe Hodges
Grace Holden
Edna Hovland
Nydia Huth
George Leonard Jensen
Leo Anthony Juhnke
Arthur Kaindl
Robert John Kehm
C. Ernest Kemnitz
Blair Stevens Keyes
Walter Kidder
Jerome Kohout
Christian Korup
Carter Lamb
Sidney LaMontaine
Webster Jay Lewis
Charles McCabe
Sophia Medwedeff
Emma Lucretia Melendy
Dale Middleton
Frank Edward Moffett
George Robert Moore
Roy Stehman Moore
Maurice Hubert Needham
Frank J. Novak
Caroline Edith Osbornson
Orville Page
Helen Pierce
Earl Rathbun
James Reddick
Florence Richardson
Samuel Richman
Arthur David Salomon
Carl Schmidt
Gertrude Schofield
Edward Schweiger
Etta Shafer
Victor L. Sherman
Lillian Alice Smerling
Warren Albert Smith
Waldo Sommerfeld
Irving Stein
William Roy Swissler
Theodore Szmergalski
Percy James Taylor
Charles William Teegarden
Charles Ellery Thayer
Arthur Victor Herman
Arthur Cavanaugh Tuohy
Stephen Sargent Visher
Emil von Plachecki
Carl Watson
William Watson
David Spencer Wegg
Cecelia Wells
Gale Whitney
Aubrey Luther Whittemore
Raymond George Williams
John Zielaskowski

CANDIDATES FOR THE TITLE OF ASSOCIATE.

Anna Louise Behl
William Abner Carter
Jacob Cook
Eunice Keller Costello
May Cunniff
Louise Eismann
Bessie J. Eiszner
Frederick Falls
Orra May Foote
Matilda Rose Franklin
Nelle Gill
Bessie Jean Hanna
Grace Lucile Hennecke
Cora Kelly
Agnes Kendrick
Robert Joseph Kerner
Frank Koepke
Arthur Bernard Krock
Jesse Herbert Libberton
Edwin Martin
Agnes Emma McMahon
Robert Rollins Mix
Amy Moorhouse
Edward Jasper Morgan
Helen Mulford
Frank Weldon Munson
Clarence Ohlendorf
Elizabeth Patrick
James Aloysius Rafferty
Ethel Scholes
Annette Silverbeg
Nellie Gertrude Spence
Clara Belle Touzalin
Elizabeth Fargo Towne
Cherrill Isabella Wells
Harry Wernicke

CANDIDATES FOR THE DEGREE OF MECHANICAL ENGINEER.

William Morton Kinney. Thesis: *A Comparison of the Cost of Operation of Steam-Driven Turntables with that of Electric-Driven.*

Charles Kob. Thesis: *Tests of a Refrigerating Plant.*

Bernhard Riffel. Thesis: *Arrangement of Bars in Beams of Reinforced Cement.*

Elmer Tolstead. THESIS: *Cost of Operating a Branch Line of a Steam Railway.*

IX. The Director's Annual Statement of the Condition of the Institute.

X. CHORUS. "Estudiantina Lewisiana."

THE CHORUS, THE ORCHESTRA, AND THE AUDIENCE.

XI. THE RECESSION.

CHANGES IN THE TEACHING FORCE.

Certain changes were announced in the Director's Annual Statement, which appears elsewhere in this issue.

In the course of the summer the resignations have been accepted of Professor William Albert Greeson, Dean of the Faculty, and Professor Paul Mellen Chamberlain, of the Engineering School. Dean Greeson has accepted the superintendency of schools at Grand Rapids, Mich., where his success is assured by the same qualities of directness, simplicity, and sanity which marked his long and important term of service in Lewis Institute. Professor Chamberlain, who has rendered the Institute valuable services in the trying period of the organization of the Engineering work, has accepted a position as Consulting Engineer with the McCan Mechanical Works, of Los Angeles.

The following new appointments have been made: A. O. Greeson, E. E., recently of the State Agricultural College of Montana, to an instructorship in Physics and Engineering; A. W. Cavanaugh, recently of Soule College, New Orleans, to an instructorship in Mathematics; Anna Elizabeth Drummond, A. B., Mich. 1903, to an instructorship in English; Grace Hennecke, A. A., Lewis Institute 1906, to an assistantship in Domestic Economy; J. Herbert Libberton, to an assistantship in Physics; Walter Strauss, to an assistantship in Physics; C. Madeline Burtner, graduate of the Sargent School of Physical Education, to an instructorship in Physical Culture; John Baird, to an assistantship in Woodwork; Professor Edwin Herbert Lewis, to the Deanship of the Faculty.

Professor Herbert Edgar Cobb returns to the department of Mathemathics after a year of study at the University of Berlin. The following instructors are absent on leave: George Plimpton Adams (Philosophy); Edward Herman Lay (Mathematics); Kate Belle Miller (English); Julia Dumke Peet (German).

"FAUST" AT ORCHESTRA HALL

An ambitious but remarkably successful student performance occurred at Orchestra Hall on the evening of June 1st when Professor George Lee Tenney's chorus of three hundred Lewis Institute students presented "Faust" in concert form. The soloists were professional singers, and the orchestra was augmented by several from the Theodore Thomas Orchestra and the Chicago Symphony Orchestra, but the chorus itself was naturally the center of interest. Whatever anxiety the friends of the young singers may have had was set at rest by the evenness and enthusiasm with which the heaviest selections were taken, notably the waltz and chorus at the end of the first act, the soldiers' chorus in the second act, and the closing chorus in the third act. Mr. Tenney is to be congratulated upon his success. Children are easily trained to sing what is within their power, and adult choruses are supposed to make up in steadiness of aim and attention what they may lack in freshness of enthusiasm. But a chorus of college boys and girls is a somewhat uncertain thing, since adolescence does not look with favor upon regular attendance at rehearsals, and is inclined to regard discipline as a superfluous imposition. Mr. Tenney seems to be able to arouse his students to a pitch of enthusiasm which shrinks from nothing. The choice of "Faust" was defended in the following little apologia which appeared on the programmes:

"The audience may question why a chorus of amateurs should attempt to give in concert form an opera which has twice this season been given in opera form by professionals. The reason is this: The Lewis Institute chorus was organized not only for the pleasure of its members and their friends, but for its educational value. Last year it presented at the Auditorium Theater 'The Gondoliers.' The soloists were chosen from the chorus, the ladies' costumes were made by the students, the posters were drawn by members of the art department, and almost all the students had some particular interest in the performance. This year the chorus wished again to present an opera in the same manner, but it seemed more advisable, both because of the labor involved and for educational reasons, to give a well-known work of greater magnitude with professional soloists. By this means the work of the students could be done in the weekly practices, and no student would lose any class work on account of special rehearsals. 'Faust' was selected purely because it is a great and well-known opera and because, by giving it themselves, the students of the Institute would become more familiar with it than they might become from hearing it rendered by others. 'Faust' was chosen also because its orchestration is not too far beyond the ability of the Lewis Institute Orchestra."

The soloists were as follows: Mrs. Genevieve Clark Wilson, "Margarita"; Miss Mary Peck Thomson, "Siebel and Martha"; Holmes Cowper, "Faust"; William Beard, "Valentine"; Dr. Hugh Schussler, "Mephistopheles"; Walter Zitzewitz, "Wagner." All of these singers (except the last, a Lewis student) are well known to Chicago audiences. All were in good voice and all brought to the work of the evening much dramatic feeling, while Mrs. Wilson's exquisite singing of the Bijou song gave a hint of what she might have accomplished had she selected the stage as a career.—*The Musical Leader.*

DRAMATICS

The Deutscher Klub of Lewis Institute achieved with great credit a very difficult task when it presented

Schiller's "Die Räuber" in German. The presentation was made on the evening of April 7, under the direction of Assistant Professor Jessie L. Jones, Ph. D.

An excellent presentation of Sheridan's "The Rivals" was given on the evening of June 22, by the Parnassian Society and the Girls' Collegiate Club, under the direction of Mrs. Ida Serven.

ATHLETICS

The 1906 Lewis Institute (Academic Division) Track Team has earned for the fourth consecutive year the much coveted title of Western Interscholastic Champions, having made a clean sweep of all the Western meets. The season was an entire success and remarkable in many respects. Devoid of any particular star performer, the team was composed of a large and well-balanced squad of sturdy young athletes. Aside from their winnings as a team, many Institute track records were broken and several new interscholastic marks were set by the Lewis athletes.

The Institute boys won the first big meet of the year on May 12th, the Northwestern Interscholastic games, with a total of 32 points. They were closely pressed for this victory by the Shattuck Military Academy. The team again showed its quality at Ann Arbor, winning the Michigan Games easily from the Detroit University school, an old-time rival. The recognized championship meet of the year, the University of Chicago Interscholastic, resulted in another easy victory for Lewis Institute, 23 points being chalked up. Here again the Detroit University School was the principal contender for the honor.

The following eleven members of the team, having scored points in the big meets, were awarded the track athletic emblem:

Paul Morris, sprints.
John Vickery, sprints.
Henry Claussenius, sprints.
Ellis Nicholl, sprints and jumps.
Orville Page, distance runs.
Charles Glore, distance runs.
Karl Watson, jumps.
Roy Rennacker, pole vault and weights.
Irving Jordan, high jump.
William McMullen, jumps and hurdels.
Dudley Edwards, distance runs.

A record of the points made by the Lewis team in the three big meets is here given:

NAMES.	Northwestern Meet, May 12	Michigan Meet, May 26	Chicago Meet, June 9	Athletes' Total
Rennacker	10	8½	3	21½
Vickery.............	6	8	5	19
Nicholl	6	6	7	19
Watson	0	4	3	7
Glore	3	3	0	6
Edwards	3	3	0	6
Page	0	0	5	5
Morris..............	0	3	0	3
Jordan..............	1	1	0	2
McMullen....	2	0	0	2
Claussenius	1	0	0	1
Totals	32	36½	23	

At a meeting held in the Trophy Room, on June 12th, Ellis Nicholl was elected captain of the 1907 track team. Mr. Nicholl is a hard worker and a good athlete, and should enjoy the hearty support and co-operation of his fellow team-mates during his leadership of the Institute track team.

THE OLD STUDENTS' UNION.

Saturday, May 26, 1906, was celebrated at the Institute by the return of some six hundred old students, who thronged the halls, held reunions of various social organizations, ate dinner in the lunch-room, and rallied in the evening to organize "The Old Students' Union" of Lewis Institute.

At the evening mass-meeting Graham Romeyn Taylor presided, Charles Eaton was master of ceremonies behind the scenes, and a varied program was presented, to which we feel ourselves unable to do justice by ordinary methods of description. The merriment ran high for the first hour; ancient songs were revived, and confetti and short speeches filled the air. Among the speakers were John Smale, Agnes Kaufman, Alexander Bailey, Rayna Simons, George Adams, Joseph Hora, Jacob Le Bosky, Charles Eaton, Florence Cole, Mary Granger, Jessie Cox, Walter Rogers, Mrs. Walter Rogers, Albert Bowman, John Leonard, Mr. Balfour, and Herman Bulkley, author of a new and popular Lewis song.

The second hour of the mass-meeting was more serious. Short addresses were made by Judge Kohlsaat, Director Carman, and Professors Lewis, Mann, and Greeson. A permanent organization was effected. The officers for the coming year are as follows: President, John H. Smale; Vice President, Helen Kohlsaat; Secretary-Treasurer, Lewis Gustafson; Executive Committee, the officers, with Harriet Robertson and Paul M. Goodwin.

The school spirit shown at the day's meetings was magnificent, and we believe that the new organization holds very great powers for good.

We clip from *The Epiphany* the following note concerning the president of the Old Students' Union:

"The other change among our workers concerns Mr. John H. Smale, who has been our Sunday School Superintendent and one of our lay-readers, and who for more than seven years has been the Server at the 8 o'clock Sunday Celebrations of the Holy Communion. The Bishop has recently appointed him Lay-Missionary in charge of the congregations at Manhattan and New Lenox. . . . His admirable work in brotherhood circles has already won recognition throughout the Church at large, and has made him one of the leaders among the younger laymen of this diocese. He is to be one of the speakers at the coming Brotherhood Convention at Memphis. His long connection with our parish has been marked by rare efficiency and usefulness, and we all wish him godspeed as his work expands, and as his ordination day draws near."

THE OLD STUDENTS.

NOTE.—If you are a former student of Lewis Institute, your old friends and your instructors will be glad to know where you are and what you are doing. Do not allow a false modesty to prevent your writing out these facts and sending them to "THE BULLETIN," Lewis Institute, Chicago. With news about yourself please send news also about some other former student or students.

Alice E. Baldwin ('97-'98; '05) was married this summer to Mr. Charles J. Webb. The ceremony took place at the summer home of the bride's father and mother, Dr. and Mrs. A. E. Baldwin, at Lake Geneva. Mr. and Mrs. Webb are at home at 6607 Ellis Avenue, Chicago.

Albert P. Bradish ('97-'99) is in the United States Postal Service, registry division, Chicago. Home address: 152 South Leavitt Street, Chicago.

Albert Wm. Brickwood ('98-'00) is now Consul at Puerto Cortez, Honduras, Central America, having been promoted from Consul at Nagales, Sonora, Mexico. Address: American Consulate, Puerto Cortez, Honduras.

Alfred Edwards Chadwick ('97-'01) and Mary Abigail Chamberlain ('95-'02) were married on Tuesday, April 17th. Mr. and Mrs. Chadwick are at home at Poughkeepsie, New York.

Ethel Dux ('96-'02) was married in August, 1905, to Raymond W. Bradshaw. Mr. and Mrs. Bradshaw are living at 908 Leland Avenue, Chicago.

H. M. Ebert is principal of the High School at Elyria, Ohio.

Vernon T. Ferris ('96-'98) is with Ginn & Co., publishers of school and college text-books, at 378 Wabash Avenue, Chicago.

Harry Forster ('00–'03) is with the Wells-Fargo Express Company, at the Polk Street station, Chicago. Home address: 786 Washington Boulevard, Chicago.

H. Walter Forster (M. E. '05) is engineer with the Philadelphia Fire Protection and Inspection Bureau, 137 South Fifth Street, Philadelphia.

Louise Gill (A. A. '02) is principal of the High School of Eureka, Ill. Home address: Arnold, Ohio.

Bess Gill (A. A. '04) is principal of the High School of Marseilles, Ill. Home address: Arnold, Ohio.

John H. Grzybowski ('99-'01) has legally changed his name to John H. Grow. He holds a position as designing draftsman with the Allis-Chalmers Co., Milwaukee. Mr. Grow was married September 24, 1902. Home address: 608 Nineteenth Street, Milwaukee, Wis.

Craig B. Hazlewood (A. A.'98-'04) of the Commercial National Bank, Chicago, was a member of the winning team in a recent debate between the Chicago and Detroit Chapters of the American Institute of Bank Clerks, on the resolution "that all municipalities should own and operate their public utilities."

The Reverend and Mrs. Albert Ashleigh Zabriskie announce the marriage of their daughter, Jane Ackerman La Tourette, to Robert Wilhelm Hegner, Wednesday, September 12, 1906, at Greendale-on-the Hudson. Mr. Hegner is an associate of the year 1902.

W. H. Hollister ('97-'01) is stationed at Los Angeles, Cal., for the Automatic Electric Co., of Chicago.

Paul Marion Hotckin was married on Wednesday, May 2d, to Miss Jannette Mae Bean, daughter of Mr. and Mrs. Frank H. Bean, at Elkhart, Ind. Mr. and Mrs. Hotckin are at home at 4021 Lake Avenue, Chicago.

Arthur Clarence Jacobus was married October 5, 1904, to Miss Ada I. Hicks, of Wauconda, Ill. Home address: 301 Warren Avenue, Chicago.

Elsie Kellogg ('97-'05) was married on October 12, 1905, at Austin, Ill., to Mr. Frank Emerson Trigg, a newspaper man of Rockford, Iowa.

Charles Kob (M. E. '06) is with Joseph T. Ryerson & Son, 18 Milwaukee Avenue, Chicago.

Jacquin Leonard Lait ('00-'01) was married March 6, to Miss Laura Belle Leusch, daughter of Mr. and Mrs. Fred C. Leusch. Mr. and Mrs. Lait are at home at 632 Hirsch Street, Chicago.

J. Wyman Ludlow (M. E.'01) has changed his home address to 317 South Harvey Avenue, Oak Park, Ill.

Franklin Dee Marshall ('02-'03) is with the Chicago Edison Co. construction department. Home address: 437 East Sixty-fourth Street, Chicago.

Frank W. Merrill (M. E. '05) is with the Summers Fibre Co., Port Huron, Mich., working on new machinery for beating flax-straw into fibre, and spinning binder-twine. The binder-twine now in general use is from Manila, and is fairly expensive. The Summers Company uses American flax, and expects to cut the cost of twine to the consumer. Mr. Merrill was married in December, 1905. Home address: 625 Michigan Street, Port Huron, Mich.

George A. Olson ('97-'98) is an instructor in agricultural chemistry in the University of Wisconsin. Address: The University, Madison, Wisconsin.

Walter C. Page is a draftsman in the mining department of Allis-Chalmers Company, Milwaukee. Address: 395 Park Place, Milwaukee, Wis.

Ralph Plum ('02-'04) is in charge of the storeroom for James B. Clow & Sons, wholesale plumbers. Home address: 292 Winthrop Avenue, Chicago.

Elmer B. Tolstead (M. E. '06) is with the Aermotor Company, Twelfth Street and Campbell Avenue, Chicago.

Charles Francis Walsh ('97-'03) was married April 14th to Miss Agnes Raymond, daughter of Mrs. Lillian E. Raymond of Santa Ana, Cal. Mr. and Mrs. Walsh are living at 4419 Walnut street, Los Angeles, Cal. Mr. Walsh is with the Pacific Electric Co.

NECROLOGY.

Buford Egan ('99-'03) was born February 2, 1882, and died May 12, 1906, of erysipelas, at Winnipeg. The sudden passing of one so robust and buoyant as Egan was a great shock to all his friends, especially his brothers of the Omicron Kappa Pi fraternity.

George Marshall ('99-'03) died April 20th of cerebro-spinal meningitis. At the time of his death Marshall was studying law, applying himself with an earnestness far beyond his physical strength, but characteristic of this whole-souled and lovable student.

Lawrence True ('99-'03) was accidently drowned August 5th. He was forward on the yacht St. Claire, bound from Bay City to Tawas Beach, when a squall struck the boat and he was washed overboard. True is remembered in the Institute as a manly fellow, and his untimely death is sincerely mourned.

Lewis Institute

Founded by Allen C. Lewis

A Polytechnic Institution for Both Sexes

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Lewis Institute Offers both Day and Evening Courses

Instruction is given in general and technical studies covering the usual college and high school periods. The courses of instruction are grouped into three main divisions :

1. Engineering and the Mechanic Arts.
2. General Science, including Domestic Economy.
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Lewis Institute confers a certificate, a title, and a degree.

The "academic certificate" corresponds to a diploma from a classical or an industrial high school. The title (Associate in Arts) represents two years of college work. The degree (Mechanical Engineer) represents the completion of the courses in mechanical or electrical engineering.

For further information, address Director George Noble Carman, Lewis Institute, Chicago.

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